

AUSTRALIA
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PATENT REQUEST: STANDARD PATENT

We, being the person identified below as the Applicant, request the grant of a patent to the person identified below as the Nominated Person, for an invention described in the accompanying standard complete specification.

Full application details follow.

[71] Applicant's name and address:

JOHN LESLIE COOPER AND KEITH ROBERT KITE

[70] Nominated Person's name and address:

JOHN LESLIE COOPER AND KEITH ROBERT KITE respectively of 159
Tapleys Hill Road, Seaton, State of South Australia, Australia and 10
Demand Avenue, Arundel, Queensland, Australia

[54] Invention Title:

WHEELCHAIR TRANSPORT VEHICLE

[72] Name and address of actual inventor:

KEITH ROBERT KITE of 10 Demand Avenue, Arundel, Queensland, Australia

[74] Address for service in Australia

COLLISON & CO., 117 King William Street, Adelaide, S.A. 5000.

Attorney Code CO

ASSOCIATED PROVISIONAL APPLICATION DETAILS

[60] Application Number PM1612 and Dated 5th October 1993

Dated this 5th day of October 1994

JOHN LESLIE COOPER AND KEITH ROBERT KITE
By their Patent Attorneys
COLLISON & CO.



GEOFF HABEL

43501 GEH KLS

P/00/008
Section 29(1)
Regulation 3.1(2)

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NOTICE OF ENTITLEMENT

We, JOHN LESLIE COOPER AND KEITH ROBERT KITE
Respectively of 159 Tapleys Hill Road, State of South Australia, Australia and
10 Demand Avenue, Arundel, State of Queensland, Australia

being the Applicant in respect of the Application filed herewith, state the
following:-

The persons nominated for the grant of the patent;

Keith Robert Kite is the actual inventor and John Leslie Cooper is
the assignee of a part interest of the invention from the actual inventor.

The persons nominated for the grant of the patent are;

the applicants of the provisional application listed on the patent
request form.

The basic application listed on the patent request form referred to is the first
application made in a Convention country in respect of the invention.

Dated this 14th day of September 1994


JOHN LESLIE COOPER


KEITH ROBERT KITE



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(54) Title
WHEELCHAIR TRANSPORT VEHICLE

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(71) Applicant(s)
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(57)

A wheelchair transport vehicle which is a modified station wagon. The body is lengthened behind the rear wheels, the roof is raised rearwardly of the rear seats, and the floor is lowered. Access is through the rear of the vehicle by a foldable ramp attached to the rear of the vehicle, the foldable ramp and the tail gate attached to the roof closing the rear access.

43501 GEH:KLS

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Regulation 3.2

AUSTRALIA
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COMPLETE SPECIFICATION
FOR A STANDARD PATENT
ORIGINAL

Name of Applicant:

JOHN LESLIE COOPER AND KEITH ROBERT KITE

Actual Inventor:

KEITH ROBERT KITE

Address for Service:

COLLISON & CO., 117 King William Street, Adelaide, S.A. 5000

Invention Title:

WHEELCHAIR TRANSPORT VEHICLE

Details of Associated Provisional Applications:

Application No PM1612 dated 5th October 1993

**The following statement is a full description of this invention,
including the best method of performing it known to us:**

This invention relates to a wheelchair transport vehicle

BACKGROUND OF THE INVENTION

Vehicles for the transport of persons while seated in a wheelchair are known, and one common vehicle is a modified passenger car. This vehicle is
5 modified by lengthening the wheelbase between the front and rear seats, and providing access to the vehicle through the side of the vehicle. The access is through a door which is formed in two parts, there being the lower door having a vertical hinge on the forward side of the door, and an upper door which is hinged about its upper edge so that it swings upwardly. In order to provide the
10 additional height required to accommodate a person seated in the wheelchair, the roof line of the vehicle is raised.

In order to provide access into the vehicle a small portable foldable ramp has to be carried in the vehicle which is positioned between the vehicle floor and the ground. Thus the person in the wheelchair is pushed up the ramp into the
15 vehicle and when in the vehicle the wheelchair has to be manoeuvred and turned through 90 degrees so that the patient faces forwardly. This is an awkward operation for both the person in the wheelchair and also the helper due to the lack of space for the helper. This lack of space can result in back injuries to the helper. The ramp is then removed, folded and stored in a secure
20 position. Thus also at the destination the reverse manoeuvre has to be carried out, the portable ramp removed, folded and stored in its secure position. Additionally when the wheelchair is in position in the vehicle the number of other passengers which can be carried in the vehicle is restricted for the wheelchair is positioned directly in front of the rear seat.

25 Thus it can be seen that with the known vehicles, a serious disadvantage is that the vehicle has to be completely cut in half and then rebuilt with the lengthened portion inserted, and the drive train as well as lengthening the hydraulic and electric lines to the rear of the vehicle. Also as noted above it is not an easy matter for the person in the wheelchair to board and alight from
30 the vehicle.

It is an object of this invention to overcome one or more of the disadvantages

of known vehicles.

It is a further object of this invention to provide a relatively simple modification to a passenger vehicle to be suitable for the transport of wheelchair patients

5 It is a still further object of the invention to provide a wheel chair transport vehicle in which the wheel chair and occupant can enter in the direction of travel of the vehicle.

Another object of the invention of the invention is to provide a wheelchair transport vehicle which is modified to provide access to the wheelchair without interfering with the position of the normal seats of the vehicle and thus does
10 not restrict the number of passengers which can be carried by the vehicle.

A still further object of the invention is to provide a simple and effective ramp which is attached to the vehicle and is easily lowered and raised to close a portion of the access opening to the vehicle.

BRIEF STATEMENT OF THE INVENTION.

15 In a further feature of the invention there is included the step of removing the petrol tank and providing a fuel tank in the vehicle behind and adjacent the rear seat of the vehicle.

BRIEF DESCRIPTION OF THE DRAWINGS.

20 In order to more fully describe the invention reference will now be made to the accompanying drawings in which:-

FIG 1 is a side view of a vehicle according to the invention;

FIG 2 is a partial rear view;

FIG 3 is a view showing the rear opened and the ramp lowered;

25 FIG 4 is a view of the ramp partially folded, and a partial view of a lower corner of the ramp.

DESCRIPTION OF THE PREFERRED EMBODIMENT.

As shown in the drawings the vehicle 1, which is a station wagon type vehicle, is modified from behind the rear seat and the rear doors to provide accommodation for a wheelchair and its occupant. Thus the portion of the vehicle from the cut line 2 is removed, and a roof 3 and side panels 4 are added. As shown in FIG 3 the floor 5 from the end of the vehicle to between the wheel arches is lowered, and the tail gate 6 which was removed from the vehicle is replaced and hinged to the lengthened and raised roof 3.

In order to close the lower portion of the rear of the vehicle and also to provide wheelchair access to the vehicle, there is provided a folding ramp 7 hinged to the end of the lowered and extended floor. The ramp has two portions 8 and 9 hinged to each other, the portion 8 being hinged by hinges 10 to the end of the floor of the vehicle, and the portion 9 being hinged to the side of portion 8 opposite to the hinges 10.

The opposite side of portion 9 is provided with a pair of small wheels 11 which engage the ground and allow the ramp to move as the height of the vehicle may vary during entry and exit of a wheelchair and its occupant. Each of the portions 8 and 9 have side rails 16 which support guide rails 15, the side rails having 16 on the two portions having ends 17 and 18 which, when the ramp is extended, abut each other so that the pivoting of the lower portion 9 relative to the upper portion is limited and cannot extend past the in-line position.

The ramp is shown in the extended position in FIG 3 and is folded by grasping the guide rails 14, which also act as handles, and raising the centre portion, the ramp folding as shown in FIG 4, and finally being positioned to close the access opening as shown in FIG 2. The portion 9, at its central portion on the edge adjacent the portion 8 has a catch 13 to be engaged by the existing lock in the lower edge of the tail gate. Also the portion 8 when in its closed position has spring loaded catches (not shown) which engage in the opening in the rear of the vehicle to securely lock the ramp in the closed position. Also the portion 9 can have spring loaded catches 12 on the under surface, so that when the ramp is folded to the closed position, these catches engage in spring loaded sockets (not shown) in the under surface of the portion 9 to securely hold this portion 9 in the closed position.

The vehicle which is converted normally has the petrol tank positioned under

the floor at the rear of the vehicle. However as during conversion the floor is lowered, the petrol tank is removed and a fuel tank is positioned behind the rear seat in the area indicated by the dotted line 15. This fuel tank can be a liquid tank or a gas tank to receive LPG. The tank is preferably placed in a
5 separate compartment which is covered in a protective covering such as carpet or other suitable covering material.

Thus it will be seen that there is provided according to the invention a wheel chair transport vehicle into which the wheelchair and occupant can pass into the vehicle to face the forward direction of the vehicle without having to turn
10 the wheel chair through 90 degrees. Thus also when the wheel chair and occupant have to alight from the vehicle, the wheel chair can pass directly out of the vehicle without having to manoeuvre the wheelchair so that it can be wheeled down the ramp. Also the ramp is fixed to the vehicle so that when it is folded it forms the lower closure or door of the opening to the vehicle. The
15 tail gate which is part of the vehicle before modification is attached to the raised roof line and operates in the same manner as before, except that it is locked to the folded ramp which thus closes the lower part of the opening.

That portion of the vehicle forming the wheel arches, is formed as a shelf or seat 15 and extends to the rear of the vehicle.

20 Although one form of the invention has been described in some detail, it is to be realised that the invention is not to be limited thereto, but can include improvements and modifications falling within the spirit and scope of the invention.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A wheelchair transport vehicle having access from the rear of the vehicle, the access opening being closable by a tail gate hinged to the roof line of the vehicle and a foldable ramp attached to the floor of the rear portion of the vehicle.
5
2. A wheelchair transport vehicle having access from the rear of the vehicle to position the wheelchair behind the rear seat of the vehicle, the floor area of the vehicle for the wheelchair being at a lower level than the floor area of the remainder of the vehicle, the roof line of the vehicle over the lowered floor area being raised above the roof line of the remainder of the vehicle, and doors for closing the access opening.
10
3. A method of converting a station wagon type vehicle to a wheelchair transport vehicle including the steps of removing the roof and side portions of the vehicle from behind the rear doors of the vehicle, extending the floor area of the load portion of the vehicle while lowering the floor between the wheel arches, raising and extending the roof over the floor area as extended, adding a folding ramp to the end of the lowered extended floor, hinging the tail gate to the raised and extended roof, and locking the tail gate to the folded ramp.
15
4. A wheelchair transport vehicle as defined in claim 1 wherein the floor area of the rear portion of the vehicle is lowered with respect to the floor area of the remainder of the vehicle.
20
5. A wheelchair transport vehicle as defined in claim 2 wherein the lowered floor area extends between the rear wheel arches to the rear of the vehicle.
- 25 6. A wheelchair transport vehicle as defined in claim 5 wherein the doors for closing the access opening comprise a tail gate hinged to the end of the raised and extended roof line to closing the upper portion of the access opening, and a foldable ramp closing the lower portion of the opening, the tail gate locking on to the foldable ramp.
- 30 7. A wheelchair transport vehicle as defined in claim 6 wherein the ramp

is in two portions, an upper portion hinged to the rear end of the lowered floor of the vehicle, and a lower portion hinged to the lower edge of the upper portion, whereby when extended the lower edge of the lower portion engages the ground and the two portions form a ramp leading into the vehicle, the two
5 portions having stops to maintain the ramps in extended position, and on folding the upper edge of the lower portion and the lower edge of the upper portion become uppermost, the upper edge of the lower portion having latch means onto which a latch on the tail gate engages when in the closed position.

10 8. A wheelchair transport vehicle as defined in any one of claims 2 and 4 to 7 wherein the fuel tank is positioned adjacent to and behind the rear seat of the vehicle.

9. A wheelchair transport vehicle substantially as hereinbefore
15 described with reference to and as illustrated in the accompanying drawings.

Dated this 5th day of October 1994

20 JOHN LESLIE COOPER AND
KEITH ROBERT KITE
By their Patent Attorneys,
COLLISON & CO.



ABSTRACT

A wheelchair transport vehicle which is a modified station wagon. The body is lengthened behind the rear wheels, the roof is raised rearwardly of the rear seats, and the floor is lowered. Access is through the rear of the vehicle by a
5 foldable ramp attached to the rear of the vehicle, the foldable ramp and the tail gate attached to the roof closing the rear access.

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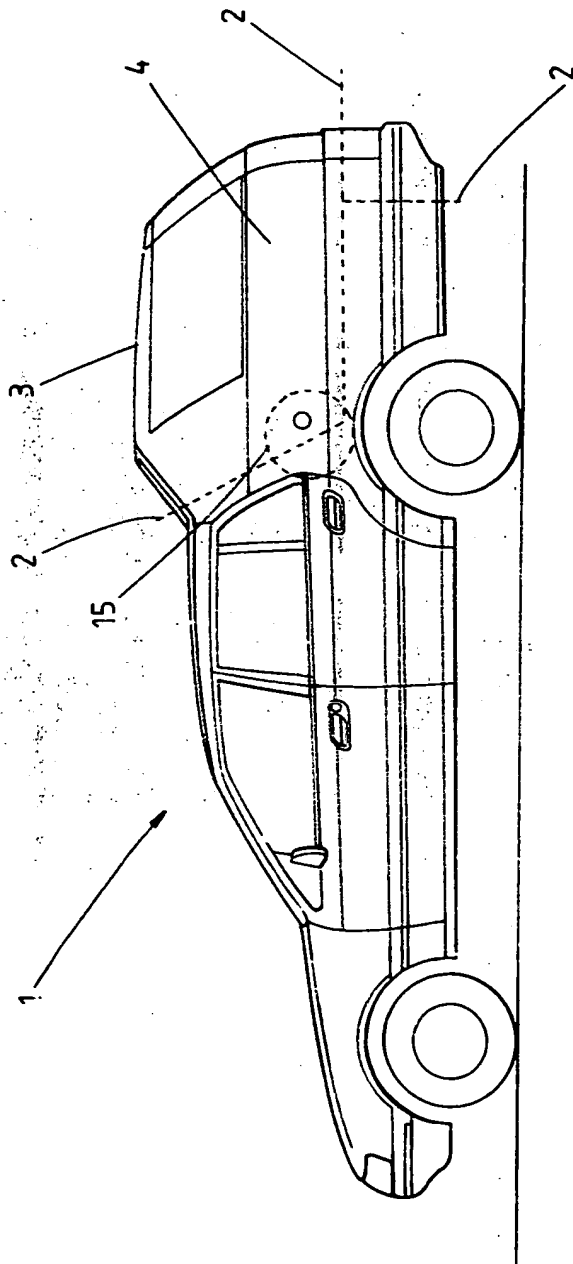


FIG 1

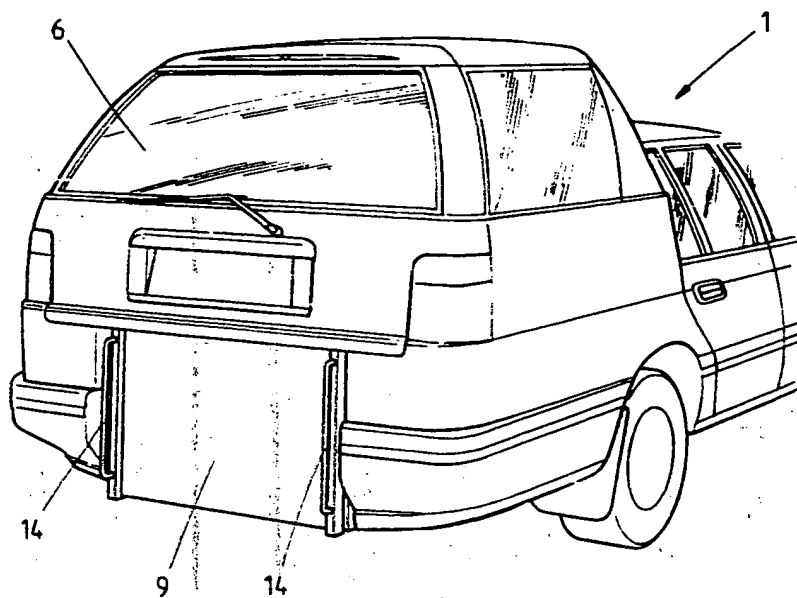
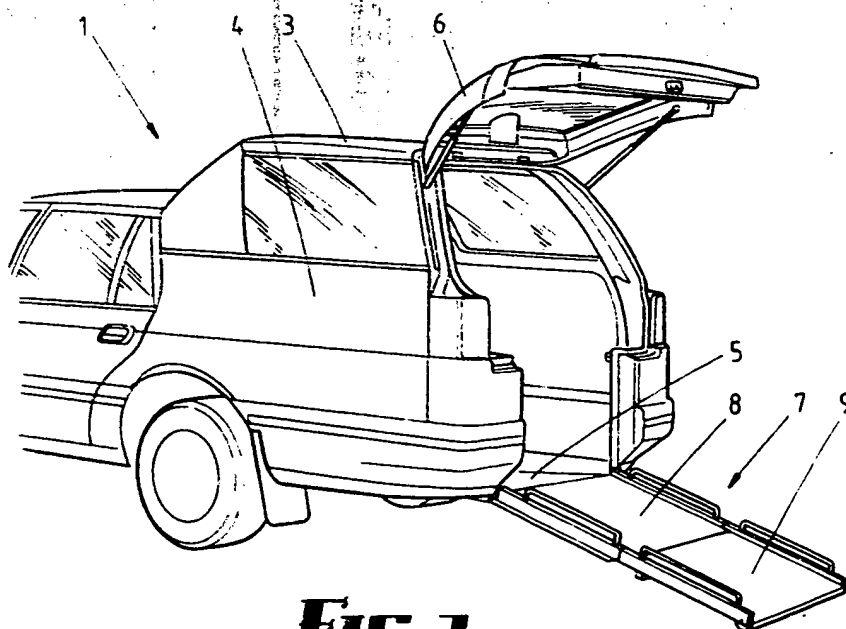
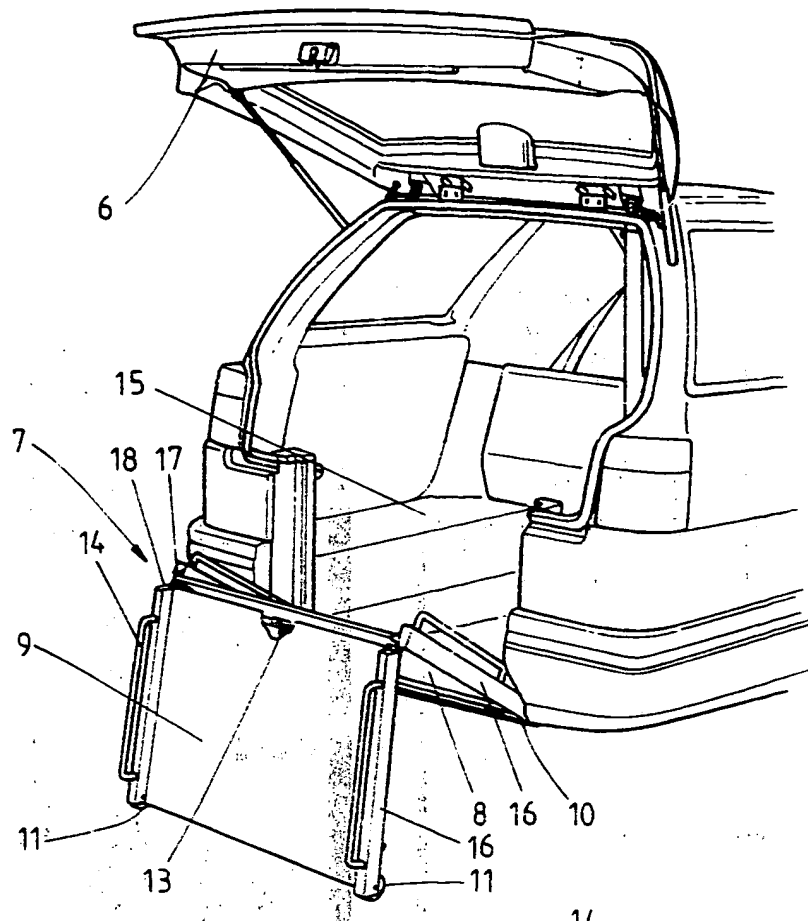
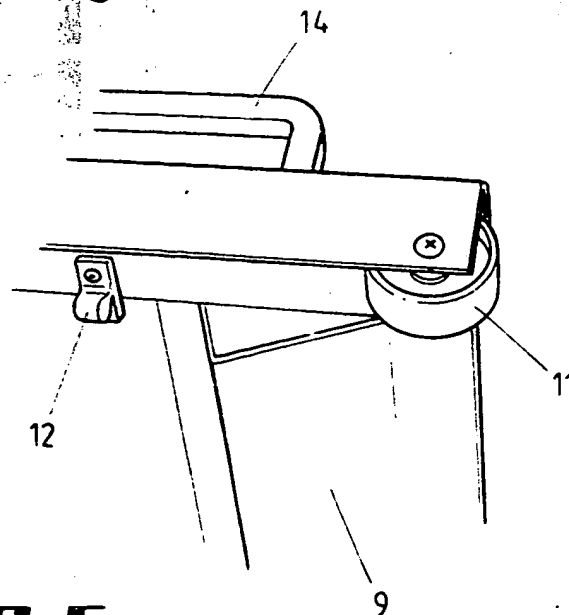
**FIG 2**

FIG 3

**FIG 4****FIG 5**

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